The industrial land use for this area is consistent with the land use policies for the area as described in Section 3.4.2.2.

To support the industrial land use, backfilling of the highwall to AML's elevation will be achieved. Map 21A shows the postmining topography for the industrial land use. The Division's April 22, 1996 Technical Analysis states... "Parts of the reclaimed site contain exposed highwall remnant. Both the Division and OSM determined that the highwall did not have to be completely backfilled in order to meet all state and federal reclamation requirements. The Division has determined that highwall reclamation must meet or exceed the prior approved plan. Highwall remnant will be allowed but they cannot exceed the height or length of the highwalls that existed prior to redisturbance".

The remaining highwall is compatible with the higher and better industrial postmining land use, will be stable (Exhibit 11), will not be greater in height or length than the cliffs within the area, will be compatible with the geomorphic process of the area, and will not pose a hazard to the public health and safety or the environment.

The industrial land uses may be, but not limited to: heavy and light manufacturing, fabrication of materials, repairing, rebuilding, and/or assembling of mining equipment, storing and transporting of products, warehousing of materials, multiple business complex for private or governmental uses, or other uses that are practical, reasonable, and consistent with applicable land use policies, zoning, or plans.

The Planning Commission and County Commission must approve the land use and issue a condition use permit. The intent of the land use change is to promote the economic well being of the people and broaden the tax base.

### 3.4.5.2 Land Owner Comments and Compatibility

Plateau Mining Corporation (PMC) is the legal owner of record of the surface where the industrial postmining land use is to occur. PMC wants the surface after reclamation to support not only wildlife habitat, but an industrial use consistent with its premining land use (Exhibit 1). This land use is the same as the premining land use as discussed in Section 3.4.2.2 and addressed in letters, dated January 23, 1996, to surface owners in the area as required by R645-301-412.200 (Exhibit 1).

Maps 21A through 21E - Postmining Topography and Drainage Structures Location Maps show the final fills suitable for reclamation and revegetation and are compatible with the natural surroundings and the post mining land uses.

## 3.4.6 Performance Standards

### 3.4.6.1 Postmining Land Use

All disturbed areas will be restored in a timely manner to conditions that are capable of supporting the premining land uses of wildlife habitat and industrial. The industrial land use is the highest and best use that can be achieved which is compatible with other land uses in the surrounding areas (Map 9) and does not require the disturbance of areas previously unaffected by mining.

The industrial land use has a reasonable likelihood for achievement, does not present any actual or probable hazard to public health or safety, or threat of water diminution or pollution, will not be impractical or unreasonable, will be consistent with applicable land uses policies or plans, will not involve unreasonable delay in implementation, or cause or contribute to violation of Federal, State, or local law.

However, should the industrial postmining land use not be achieved, the permittee will remove the structures and reclaim the area as represented in the full reclamation (worst case) scenario.

Documentation supporting the industrial postmining land use is presented in Exhibit 1.

0038

**PLATEAU MINING CORPORATION**

COPY

RECEIVED
NOV 21 2003
DIV. OF OIL, GAS & MINING

Willow Creek Mine
PO Box 30
847 NW Hwy 191
Helper, Utah 84526
(435) 472-0475
Fax: (435) 472-4782
An affiliate of RAG

November 19, 2003

Incoming
C/007/0038

Mr. Daron R. Haddock
Utah Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
P.O. Box 145801
Salt Lake City, Utah 84114-5801

File in:
C/007/0038 2003 Incoming
Refer to:
☐ Confidential
☐ Shelf
☒ Expandable
11/19/2003

**Re:** **Industrial Post-Mining Land Use Change, Plateau Mining Corporation, Willow Creek Mine, C/007/038, Task ID #1691, Carbon County, Utah**

Dear Mr. Haddock:

Plateau Mining Corporation (PMC) is herewith addressing the Division's findings regarding the aforementioned. As usual, PMC will list the deficiency in italics followed by its response in regular type.

*R645-301-413.310, The Permittee must establish and describe a reasonable time frame for implementation of the "industrial" post-mining use. If this time frame cannot be met (R645-301-413.333), the Permittee must initiate total reclamation of the mine facilities area.*

PMC does not consider this finding valid when considering the phased bond release process and how PMC prepared the land use change application. What does the Division consider an unreasonable time-frame? PMC believes that it is compliant with the regulations due to the fact that the area will be bonded for total reclamation, must meet its operational performance standards, and that any bond release will be in accordance with the phased bond release process, which the Division must approve.

Furthermore, on page 3.4-12, Section 3.4.6.1 – Postmining Land Use, the application states "However, should the industrial postmining land use not be achieved, the permittee will remove the structures and reclaim the area as represented in the full reclamation (worst case) scenario."

PMC is fully aware that an unreasonable delay in implementation is not preferred; however, there is no requirement, either in SMCRA or the regulations, that post-mining land uses be implemented immediately following mining. To obtain **full bond release**, the permittee must demonstrate successful completion of all reclamation requirements of the permit and regulatory program. Under R645-301-413.100, one of those requirements is restoration of all disturbed areas to conditions capable of supporting the approved post-mining land use.

The Permittee has provided the Division with two reclamation scenarios; one is an industrial land use, and the other is that of total reclamation (worst-case). This way, should the industrial land use not be achieved then total reclamation will be implemented. This concept is acknowledged by the Division in the bonding and insurance requirements section of the technical analysis.

# APPLIC TION FOR COAL PERMIT PROCI SING

COPY

Permit Change ☒ New Permit ☐ Renewal ☐ Exploration ☐ Bond Release ☐ Transfer ☐

**Permittee:** Plateau Mining Corporation
**Mine:** Willow Creek Mine **Permit Number:** C/007/038
**Title:** Industrial Post Mining Land Use Change
**Description,** Include reason for application and timing required to implement:
To facilitate an industrial post mining land use.

**Instructions:** If you answer yes to any of the first eight (gray) questions, this application may require Public Notice publication.

☐ Yes ☒ No 1. Change in the size of the Permit Area? Acres: ___ Disturbed Area: ___ ☐ increase ☐ decrease.
☐ Yes ☒ No 2. Is the application submitted as a result of a Division Order? DO# ____
☐ Yes ☒ No 3. Does the application include operations outside a previously identified Cumulative Hydrologic Impact Area?
☐ Yes ☒ No 4. Does the application include operations in hydrologic basins other than as currently approved?
☐ Yes ☒ No 5. Does the application result from cancellation, reduction or increase of insurance or reclamation bond?
☒ Yes ☐ No 6. Does the application require or include public notice publication?
☐ Yes ☒ No 7. Does the application require or include ownership, control, right-of-entry, or compliance information?
☒ Yes ☐ No 8. Is proposed activity within 100 feet of a public road or cemetery or 300 feet of an occupied dwelling?
☐ Yes ☒ No 9. Is the application submitted as a result of a Violation? NOV # ____
☐ Yes ☒ No 10. Is the application submitted as a result of other laws or regulations or policies?
*Explain*: ____
☒ Yes ☐ No 11. Does the application affect the surface landowner or change the post mining land use?
☐ Yes ☒ No 12. Does the application require or include underground design or mine sequence and timing? (Modification of R2P2)
☐ Yes ☒ No 13. Does the application require or include collection and reporting of any baseline information?
☐ Yes ☒ No 14. Could the application have any effect on wildlife or vegetation outside the current disturbed area?
☒ Yes ☐ No 15. Does the application require or include soil removal, storage or placement?
☒ Yes ☐ No 16. Does the application require or include vegetation monitoring, removal or revegetation activities?
☒ Yes ☐ No 17. Does the application require or include construction, modification, or removal of surface facilities?
☒ Yes ☐ No 18. Does the application require or include water monitoring, sediment or drainage control measures?
☒ Yes ☐ No 19. Does the application require or include certified designs, maps or calculation?
☐ Yes ☒ No 20. Does the application require or include subsidence control or monitoring?
☒ Yes ☐ No 21. Have reclamation costs for bonding been provided?
☐ Yes ☒ No 22. Does the application involve a perennial stream, a stream buffer zone or discharges to a stream?
☐ Yes ☒ No 23. Does the application affect permits issued by other agencies or permits issued to other entities?

**Please attach four (4) review copies of the application. If the mine is on or adjacent to Forest Service land please submit five (5) copies, thank you.** (These numbers include a copy for the Price Field Office)

I hereby certify that I am a responsible official of the applicant and that the information contained in this application is true and correct to the best of my information and belief in all respects with the laws of Utah in reference to commitments, undertakings, and obligations, herein.

JOHNNY PAPPAS
Print Name

Sr. Env. Engineer - 11/17/03
Sign Name, Position, Date

Subscribed and sworn to before me this 17th day of November, 2003

Wilma Howa
Notary Public

My commission Expires: Sept 05, 2004
Attest: State of Utah } ss:
County of Carbon

NOTARY PUBLIC
WILMA HOWA
70 South Main
Helper, Utah 84526
My Commission Expires
September 05, 2004
STATE OF UTAH

| For Office Use Only: | Assigned Tracking Number: | Received by Oil, Gas & Mining |
|---|---|---|
| | | |

Form DOGM- C1 (Revised March 12, 2002)

# APPLICATION FOR COAL PERMIT PROCESSING
## Detailed Schedule Of Changes to the Mining And Reclamation Plan



**Permittee:** Plateau Mining Corporation
**Mine:** Willow Creek Mine **Permit Number:** C/007/038
**Title:** Industrial Post Mining Land Use Change.

Provide a detailed listing of all changes to the Mining and Reclamation Plan, which is required as a result of this proposed permit application. Individually list all maps and drawings that are added, replaced, or removed from the plan. Include changes to the table of contents, section of the plan, or other information as needed to specifically locate, identify and revise the existing Mining and Reclamation Plan. Include page, section and drawing number as part of the description.

| | | | DESCRIPTION OF MAP, TEXT, OR MATERIAL TO BE CHANGED |
|---|---|---|---|
| ☐ Add | ☒ Replace | ☐ Remove | Section 3.4 - Land Use Information, replace page 3.4-12 |
| ☐ Add | ☒ Replace | ☐ Remove | Section 5.4 - Reclamation of Mining Disturbance, replace pages 5.4-10 (Figure 5.4-3), 5.4-14 (Table 5.4-2), 5.4-15, 5.4-16*, 5.4-17*, 5.4-18* |
| ☐ Add | ☒ Replace | ☐ Remove | Section 5.4 - Page 5.4-18 due to more verbiage on page 5.4-15 |
| ☐ Add | ☒ Replace | ☐ Remove | Map 21A |
| ☐ Add | ☒ Replace | ☐ Remove | Map 21B |
| ☐ Add | ☒ Replace | ☐ Remove | Map 22A |
| ☐ Add | ☐ Replace | ☐ Remove | |
| ☐ Add | ☐ Replace | ☐ Remove | |
| ☐ Add | ☐ Replace | ☐ Remove | |
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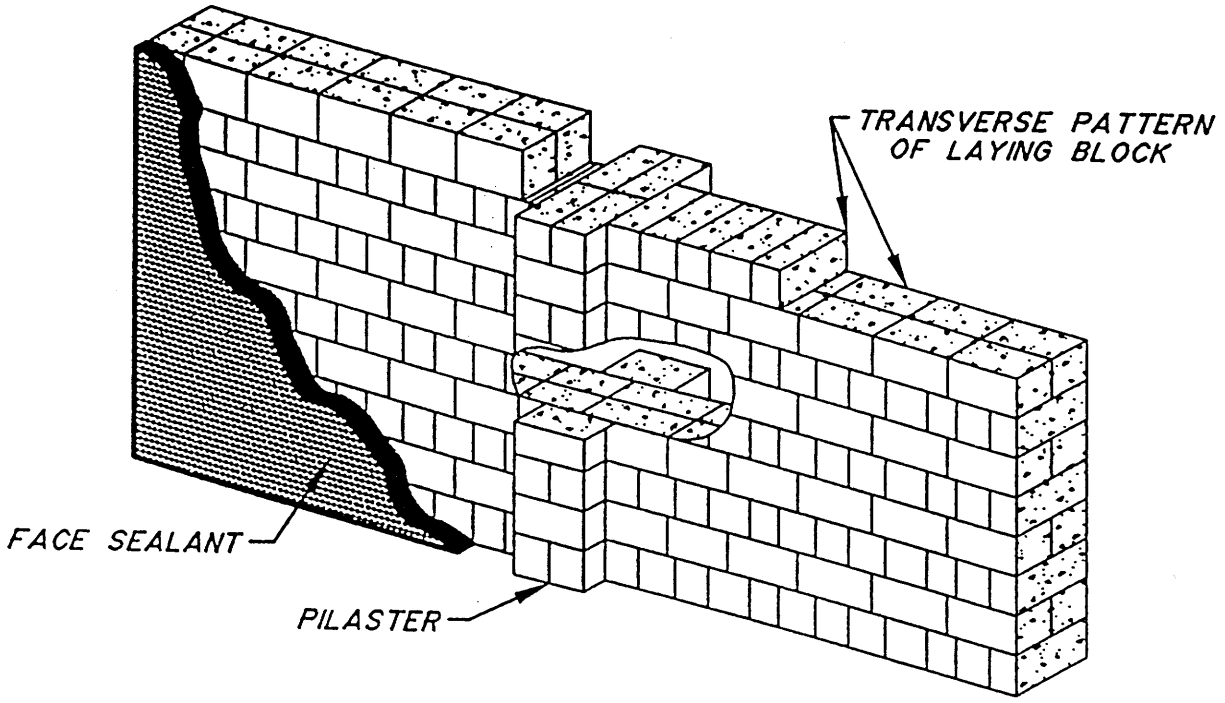
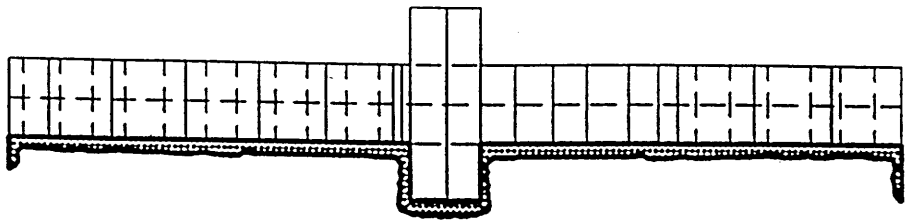
**Any other specific or special instruction required for insertion of this proposal into the Mining and Reclamation Plan.**

*Pages included due to pagination shifts.
Also, corrected table of contents will be submitted with clean copies as warranted due to textural revisions.

**Received by Oil, Gas & Mining**




SECTIONAL ELEVATION VIEW



TOP VIEW

NOTE:

1) 16"X8"X8" CONCRETE BLOCKS TO BE USED IN CONSTRUCTION. PILASTER TO BE USED IF NECESSARY FOR SOILD CONSTRUCTION.

2) NOT INSTALLED IN ROCK TUNNELS

| | | | |
|---|---|---|---|
| Project No.: 866--2200 | Design By: J.NETTLETON | Scale: NOT TO SCALE | CYPRUS Plateau Mining |
| File: TYP-PORT.DWG | Drawn By: K.CONRATH | Date: APRIL 1995 | |
| TerraMatrix Engineering & Environmental Services 1675 Pine Grove Road, P.O. Box 774018 Steamboat Springs, Colorado 80477 | FIGURE 5.4-3 | | TYPICAL PORTAL SEAL |

## TABLE 5.4-2
## MASS BALANCE EARTHWORK SUMMARY

### WILLOW CREEK MINE FULL RECLAMATION PLAN

| AREA | CUT (CY) | | FILL (CY) | | NET (CY) | |
|---|---|---|---|---|---|---|
| | Subsoil | Topsoil | Subsoil | Topsoil | Subsoil | Topsoil |
| WILLOW CREEK MINE TOPSOIL STOCKPILE | 0 | 120,470[a] | 0 | 0 | 0 | 120,470 (C)[a] |
| WILLOW CREEK MINE SURFACE FACILITIES | 268,756 | 0 | 395,356 | 0 | 126,599 (F)[b] | 0 |
| POND 12A AND 12B AREA | 12,554 | 0 | 12,151 | 0 | 403 (C)[b] | 0 |
| SUBTOTAL | 281,310 | 120,470 | 407,507 | 0 | 126,196 (F)[b] | 0 |
| TOTAL | 401,780 | | 407,507 | | 5,726 (F) | |

### WILLOW CREEK MINE INDUSTRIAL POSTMINING ALTERNATIVE RECLAMATION PLAN

| AREA | CUT (CY) | | FILL (CY) | | NET (CY) | |
|---|---|---|---|---|---|---|
| | Subsoil | Topsoil | Subsoil | Topsoil | Subsoil | Topsoil |
| WILLOW CREEK MINE TOPSOIL STOCKPILE | 0 | ~~40,866~~ *43,536* | 0 | 0 | 0 | ~~40,866~~ *43,536* (C) |
| WILLOW CREEK MINE SURFACE FACILITIES | 49,585 | 0 | ~~90,451~~ *93,121* | 0 | ~~40,866~~ *43,536* (F)[b] | 0 |
| POND 12A AND 12B AREA | 12,554 | 0 | 12,151 | 0 | 403 (C)[b] | 0 |
| SUBTOTAL | 62,139 | ~~40,866~~ *43,536* | ~~102,602~~ *105,272* | 0 | ~~40,463~~ *43,133* (F)[b] | ~~40,866~~ *43,536* (C) |
| TOTAL | ~~103,005~~ *105,675* | | ~~102,602~~ *105,272* | | 403 (C) | |

(a) The volume of topsoil available was obtained from Table 4.2-1. This volume does not include the Barn Canyon Shaft Facility topsoil since this facility has not yet been built.

(b) Volume calculation by GRID method with a node spacing of 10 feet or less and a swell factor of 1.0. (Softdesk, Inc., formerly DCA Software, Inc.)

(c) Excess cut material and fill shortages will be compensated for in the field with minor excavation and backfill modifications during reclamation construction activities. Changes will be based on survey information generated during reclamation.

Comparison of the land configuration prior to site development with the designed postmining topography based on the Facilities Area Soils Map, (Map 4), the Willow Creek Mine - Postmining Topography and Drainage Structure Location Maps, (Map 21A through 21E), the Willow Creek Mine - Premining, Operational and Postmining Cross-Section Maps, (Maps 22A and 22B), and the Willow Creek Mine - Premining, Operation and Postmining Stream Profile Maps, (Maps 22C and 22D), indicates that the designed postmining topographyscenarios will resemble the stable land configuration prior to the site development, and/or resultin more stable slopes, reduce overall highwall and cut exposures, provide for more effective drainage, and offer better blending of the area with the surrounding terrain.

As can be seen from pre and post contours shown on the Barn Canyon Site Plan (Map 31A) and the Barn Canyon Surface Facilities Area - Postmining Topography Map (Map 32A), reclamation contours will have the effect of eliminating pre pad disturbance and returning the contours to a more approximate natural configuration. Reclamation Contours have been prepared to match as closely as possible those that existed prior to disturbance. Special attention was paid to attempt to replace as much of the pre-disturbance materials as possible in an effort to reduce local land slopes as much as possible. Limited existing soil quantities and the steepness of existing slopes preclude the ability to obtain ideal surface slopes for reclamation.

During final backfilling and grading operations, drainage and sediment will be controlled by those components of the drainage control network and alternative sediment control practices.

Backfilling and grading will involve the use of tractor scrapers, tracked dozers, wheel loaders and trucks, and motor graders, as necessary to recover, move, place, grade, and compact backfill materials. Generally, backfill material will be placed in relatively uniform lifts and will be compacted by normal equipment traffic. Backfilled areas will be sloped and graded to promote effective drainage and to the extend operationally feasible long unbroken fill slopes will be avoided to minimize sheet flow and potential resultant erosion. Fill slopes will be limited to a maximum slope of approximately 2H:1V (except at the Barn Canyon shaft site and portal highwall behind the shop) and graded slopes in native material will vary dependent on material from less than 5H:1V to as much as 0.5H:1V in competent rock consistent with slope stability considerations as documented in Exhibit 11, Geotechnical Investigations. Recommended slope limitations for final cut and fill slopes will result in slope configurations having a static factor of safety of at least 1.3. The design safety factor for any benched slopes is 1.5. For the most part, backfilled areas at the Barn Canyon site will be placed at a 2H:1V slope since: 1) the site has been previously disturbed and currently has slopes exceeding 3H:1V, 2) the site is located in a narrow canyon and slopes steeper than 2H:1V exceed available limits, and 3) natural local topography exceeds 3H:1V slopes. In limited areas where reclamation slopes will be tying into undisturbed slopes the reclamation slope will be up to 1.1H:1V. The slopes at greater than 2H:1V will be of limited length and width and will only be a small portion of the reclamation slope. A slope stability analysis was performed on the longest reclamation slope, which also contained a section with the maximum proposed slope. This slope stability analysis can be found in Exhibit 22. The slope stability analysis established a minimum factor of safety for the reclamation slope of 1.30 which complies with the minimum requirements of R645-301-553.130.

Backfilling of slopes will be concave in profile, which not only provides better hydrology characteristics, but also provides a more stable mass at the toe of the slope to resist failure and lessens the mass at the top of the slope that would drive a slope failure. To facilitate the industrial land use, backfilling of the portal highwall will require overall slopes steeper than 2H:1V to eliminate the highwall to AML elevations. When reviewing that geotechnical investigations presented in Exhibits 11 and 22, the geotechnical properties of the native soil from the Willow Creek area demonstrate that concave reclamation slopes with a maximum slope of 1.3H:1V have a minimum safety factor of 1.3.

The proposed reclamation slope for the portal highwall is concave in profile with a maximum slope of 1.5H:1V for the top 15 to 20 feet of the slope. The designed slope will be stable with a minimum safety factor of 1.3. To insure the minimum safety factor is met for this fill, the soil material will be placed in approximately 12-inch lifts and compacted with an 814 or equivalent sheepsfoot compactor. Moisture will be added to the soils as conditions warrant.

The last 15 to 20 feet of the slope will be placed by excavator due to limited space. The limited space will also make the use of compaction equipment unsafe. The compaction of the soil at the top of a slope is not critical to the slopes overall stability and not compacting this zone will not affect the long term stability of the slope.

Graded areas will incorporate undulations consistent with the surrounding terrain and the postmining drainage configuration and the surface of graded areas will be left in a roughened condition to minimize runoff and erosion in the interim before soil/substitute replacement, improve bonding between the regraded surface and soil/substitute materials, and increase infiltration to maximize soil moisture levels and promote revegetation.

Under the applicable regulatory provisions dealing with the postmining land use reclamation scenarios for remining of previously mined areas (R645-301-553.500through 524), the planned backfilling and grading operations will utilize all available spoil material to eliminate remaining highwall and cut slope exposures to the maximum extent technically practical. Fill material placed against highwall and cut slope areas will be placed and graded to assure long-term stability and final slopes will provide for effective drainage and be compatible with both natural slopes in the area and the postmining land uses of industrial and wildlife habitat. Highwall and cut slope exposures remaining after backfilling and regrading will be no more than 10 to 30 feet high, will be in competent rock materials similar to the natural cliff exposures in the immediate area which range from 10 to over 100 feet in height, and will have an aesthetic appearance and geomorphic characteristics similar to these natural rock exposures.

The Barn Canyon Shaft site will be constructed using standard cut and fill operations and the site will conform to the site plan shown on Maps 31A and 31B. Since the site is near the bottom of the canyon, with steep side slopes, and since the site plan depends on the function of the shaft and associated facilities, cut and fill balancing is not entirely possible. There may be excess cut (substitute topsoil/growth medium) which will be stored at the Gravel Canyon topsoil stockpile area, . with the exception of soils that have been characterized as mollisol. Mollisol soils will be taken to a separate topsoil stockpile in the Willow Creek Mine surface facilities area, where the soil will be segregated and a sign placed to identify the soils as coming from Barn Canyon The location of both stockpiles can be found on Map 18B.

**Drainage Reestablishment**

In conjunction with final backfilling and grading activities, PMC will establish a postmining drainage configuration which is compatible with the postmining land use and with the natural drainage pattern of the surrounding terrain, will effectively route natural drainage from upgradient areas through the reclaimed area with minimal erosion or increase in sediment concentrations, and will effectively control drainage and erosion in the reclaimed areas. The design postmining drainage configuration is shown by the Willow Creek Mine - Postmining Topography and Drainage Structure Location Maps, (Maps 21A through 21E), Premining, Operation and Postmining Stream Profiles Maps (Maps 22C and 22D), Postmining Reclamation Treatment and Watershed Map (Map 21F), and for the Barn Canyon Shaft site by the Barn Canyon Shaft Facility, Post-mining Topography Map (Maps 32A and 32B). Additional discussion of postmining drainage reestablishment is provided in Section 5.5, Hydrologic Restoration.

The Barn Canyon ventilation shaft area has been an alternate sediment control area during operation and will continue to be an alternate sediment control area during the interim reclamation period. The Barn Canyon reclamation site will be roughened and mulched to resist erosion until vegetation is established. The site will be monitored for erosion until vegetation is established. The reclamation alternate sediment control area for Barn Canyon can be seen on Map 32A labeled as RASCA-6.

**Road Removal**

Certain roads within the mine facilities area will remain to support the industrial postmining land use (Map 18C) and where necessary to continue to provide access to specific areas during both reclamation and the extended liability period. Generally, the primary access roads will be removed and reclaimed in two phases. The first phase will involve ripping of these roads and removal of the associated road surfacing materials. This phase will occur in conjunction with facility demolition and removal and the surfacing materials removed will be placed as previously discussed. The second phase of road removal for primary roads will be sequenced to coincide with backfilling and grading of the areas that the roads either provide access to or pass through. When roads are no longer needed, they will be removed and the associated disturbance areas will be regraded and reclaimed.

Road reclamation will generally involve the use of tracked dozers to rip the road surface and grade any surfacing material into piles which will normally be recovered by wheel loader and either hauled directly or loaded into trucks for haulage. Road surfaces will then be ripped to alleviate any compaction and the road area will be graded to blend with surrounding reclaimed areas. During final grading, any culverts will be removed and transported to a temporary steel debris storage site for either salvage or disposal off-site. Cut/fill areas will be reclaimed by pulling the fill

material upslope into the cut and grading any remaining cut slope, the fill material, and disturbed downslope areas to a stable configuration consistent with natural drainage patterns and blending with the surrounding terrain. Any major road cuts will be reclaimed by partially backfilling the cut and grading any remaining cut slope exposures so that they are stable as described in the backfilling and grading plan discussion. Any major road fills which would interfere with postmining drainage will be removed and the associated disturbance areas regraded in conjunction with overall site grading activities.

In order to provide access to drainage and sediment control structures, soil/substitute stockpiles, and monitoring sites, several roads will be retained through the extended liability period. Primary Road PR-3 in the Castle Gate preparation plant area will be retained as a permanent road to provide continued access to existing facilities owned by Price City, Utah Power, Helper City, and Price River Water Improvement District. This road follows an existing right of way and utility easement for several existing water mains and a main sewer line. Road PR-3 follows the old County road right-of-way through Price Canyon and is used by several parties for access to areas to the north. Givencontinuing access requirements there is no justification for either removal of this road or modification to an ancillary road. Primary Road PR-5 is an existing road which will also be retained following completion of mining. Given the existing bridge across the Price River, the short access road to the Castle Gate loadout area will also be retained to provide access to the west side of the river. In addition, Primary Road PR-19 in Barn Canyon will be retained as discussed in Section 5.4.1.3. In addition, the road provides access to BLM land; a letter to the BLM has been sent requesting their input on leaving the road for post mine land use. A copy of this letter can be found in Exhibit 1.

**Soil/Substitute Replacement**

Following completion of backfilling, grading, and drainage reestablishment, available soil material will be replaced on the regraded areas as a growth medium for subsequent revegetation. Soil will be replaced as soon as operationally practicable following completion of the other necessary activities in the reclamation sequence, however, the timing of soil placement will also reflect the need to reestablish vegetation as soon as possible to stabilize and prevent loss or erosion of the topsoil.

Available soil will be recovered from stockpiles established during site development for placement on disturbed areas. Prior to soil replacement, graded areas will be ripped to alleviate compaction, promote moisture infiltration, and provide a good bond between the soil and underlying materials. Given limited soil availability, seed bed preparation as described in Sections 5.2, Soil Replacement Plans, and 5.3, Habitat Restoration Plans will also enhance overall soil conditions to provide for effective root penetration and enhance soil water holding capacity. Tractor scrapers or wheel loaders, trucks, and tracked dozers will be utilized to recover and place the available soil material at a uniform thickness. Replaced soil materials will be left in a roughened condition to control runoff, limit erosion and soil loss, and promote moisture infiltration.

**Revegetation**

Backfilling and grading will address establishment of a stable topographic configuration which provides for effective drainage and blends effectively with the surrounding terrain. Soil replacement will provide an effective vegetative growth medium. Revegetation will be the final step in restoring disturbed lands to productive, self-sustaining use. As the final step in the reclamation process, all surface disturbance areas except those associated with roads which will be retained to support the postmining land use will be revegetated. Revegetation plans are designed to restore a postmining land use of wildlife habitat consistent with pre-disturbance land use patterns in the area and support the industrial postmining land use.

Revegetation efforts will focus on establishment of effective vegetative cover as soon as reasonably possible following placement of soil/substitute material in order to prevent loss or erosion of these materials. PMC has selected the revegetation seed mixture to promote rapid vegetative establishment; assure good site adaptability; provide vegetative cover and production values consistent with effective erosion control and postmining land use requirements; and establish a healthy self-sustaining vegetative community. Typically seeding will occur in late fall in order to allow the sees to lie dormant over the winter and take advantage of increased soil moisture levels resulting from snowmelt and runoff during the spring. Seeding may occur at other times where appropriate to minimize erosion due to location, aspect, or other site specific factors. Any required shrub or woody species transplanting will occur in the fall or late spring.

Seedbed plans and practices are provided in Section 5.2, Soil Replacement Plans and revegetation plans and practices are provided in Section 5.3, Habitat Restoration Plans.

**Post-Reclamation Management and Monitoring**

PMC's objectives in managing reclaimed areas include interim inspection and maintenance to address any minor erosion, seeding failures, drainage problems, or other measures necessary to achieve the long-term goal of successful revegetation and drainage restoration consistent with the postmining land use of wildlife habitat. As part of the postmining management program, reclaimed area will be inspected on a regular quarterly basis at a minimum for any indications of significant erosion, siltation, surface instability, drainage problems, seeding failure, weed infestations, or other conditions which could adversely impact reclamation success. Inspections will continue throughout the extended liability period to assure effective reclamation. Any problems identified as a result of these regular inspections will be addressed in a timely manner consistent with overall reclamation plans and practices.

The reclamation plan for the Willow Creek Mine has been designed to prevent or minimize erosion and restore disturbed areas to a stable and productive condition and support the postmining land uses. If despite PMC's best efforts, inspection of the reclaimed areas indicates that natural erosional processes are creating significant rills or gullies, PMC will implement appropriate remedial/protective measures within 60 days following identification of erosional features meeting specific depth criteria. In order to minimize any associated surface disturbance, the proposed erosion mitigation measures reflect consideration of the nature and extent of erosional damage and are designed to be implemented in phases dependent on the severity of or potential for damage.

The lowest level of mitigation will be designed to prevent further damage and either repair damaged areas or establish surface controls which will facilitate repair through natural ongoing processes. For any areal erosion problems, where high overland flow velocities, steep slopes, or poor vegetative reestablishment have resulted in numerous rills and gullies nine inches or more in depth, evaluation and mitigation will focus on upslope drainage control and stabilization of eroded areas. Various control measures may be implemented to limit upgradient flow volumes and velocities and stabilize eroded areas dependent on site specific conditions including supplemental grading of small upgradient areas to distribute flows over a larger area, placement of large riprap or other velocity dissipaters, selective placement of straw bales or sediment fences, application of erosion control netting or other materials, supplemental seeding, mulching, or combinations of these methods.

By limiting flow volume and velocities and stabilizing the effected areas, sediment loss will be reduced, features such as sediment fences and straw bales will trap and hold sediment to help repair erosional features, and problem areas can be stabilized over time. If inspection subsequent to applicationof the initial mitigation measures indicated that erosional problems are continuing, the number and density of control structures may be increased or more intensive controls including contour furrowing, upslope diversion, or additional backfilling and grading of problem areas may be implemented.

For isolated erosional problems, where channelizationof surface runoff has resulted in the creation of one or more gullies one foot or greater in depth, both upslope drainage andthe nature of the erosional damage will be evaluated and addressed as appropriate. If upslope drainage is the primary causative factor, localized measures to control flow velocities or distribute flow will be implemented including placement of straw bales or large riprap to break up concentrated flows; establishment of berm or contour furrows to temporarily divert flows away from problem areas; and localized placement of fill, reseeding, and placement of straw bales, sediment fences, or erosion control materials to allow the damaged area(s) to stabilize.

Any seeding failures or weed infestations identified by the post-reclamation management inspections will be addressed during appropriate time periods to achieve optimal mitigation. Any areas where partial or complete seeding failure is indicated by limited vegetative reestablishment or excessive dominance of one or more species willbe addressed by reseeding the effected areas during either the early spring or late fall. Essentially the same seeding methods will be utilized as for initial seeding with the exception of seedbed preparation. Any significant weed infestations will be addressed through consultation with UDOGM to determine appropriate control measures. If the controls determined through this consultation process involve the application of herbicides, only those chemicals approved for use by the appropriate State and Federal agencies will be considered and control practices will be limited to spot application at the appropriate time period for best control of the problem species. selective herbicides

**Removal of Drainage and Sediment Control Structures**

The Willow Creek Mine Facilities area will utilize a network of stream channels and alternative sediment control measures (ASCMs) during reclamation of the site to reduce the quantity of sediment yield from the area. This is further discussed in Section 5.5, Hydrologic Resource Restoration. The worst-case approved Postmining Reclamation Treatment is presented on Map 21F. The industrial postmining land use reclamation treatment is presented on Map 21G.

### 5.4.3 Reclamation Cost Estimate

Consistent with applicable regulatory provisions (R645-301-542.800 and R645-301-800) which require that reclamation bonding calculations be based on an approved reclamation plan, PMC has developed detailed reclamation cost estimates based on the worst-case approved and proposed reclamation plans. The detailed estimates include costs for all activities described in the approved and proposed industrial land use plans with specific consideration of the areas to be reclaimed and the nature and difficulty of required reclamation efforts. Additional information on the reclamation cost estimates and related bonding considerations is provided in Section 6.1, Bonding Information, and the detailed bond reclamation cost estimate has been provided for insertion as Exhibit 17, Bonding and Insurance Information.